

global information network, such as the Internet, and a new type of network device to be referred to as an Open IP Services Platform.

[0042] One purpose of the present invention is to provide a new Internet topology that, in combination with a new type of network switching node device, offers several advantages over the prior art. Another purpose of the present invention is to offer a device that can function as the network switching node device. However, the network switching node device is described in this specification in terms of how it can provide the desired functionality to make the new Internet topology function as described.

[0043] This description will first address the network switching node device that enables the new network topology to function. Then, the specific drawbacks of existing Internet topology will be examined. Finally, the new network topology will be examined in combination with the network switching node devices that make the network function as described.

[0044] First, it is important to understand that the Open IP Services Platform is capable of functions that are

found in no other network device. To understand the advantages of this Open IP Services Platform, it is helpful to name a few network devices, and explain how their functions are all performed by the present invention.

[0045] Typical network components include but are not limited to routers, bridges, firewalls, packet shapers, switches, load balancers, and servers. These devices can all be found on a first side of the router, wherein on the second side, the router functions as a gateway to networks such as LAN segments, WANs, and the Internet or other global information networks. The specific topology of these networks on the first side of the router can vary significantly depending upon the needs and functions of the local network segment. Thus, several of the problems that the present invention overcomes include 1) the total number of physical devices that may be required for a network, 2) the number of wires that must be installed between the devices, 3) the time required to configure the devices, 4) the level of knowledge of the person that is installing the devices, 5) an understanding and memory of the specific topology that has been set up, and 6) the

ability to reconfigure a topology on-the-fly.

[0046] The network switching node device of the present invention is able to overcome these problems for several reasons. First, all of the network devices can be physically disposed within a single network switching node device, or Open IP Services Platform. Obviously, there are many obstacles that must be overcome to do this. For example, the Open IP Services Platform of the present invention is constructed to accept network components from third parties. In other words, it is not a feature of the present invention to provide these network components, rather it is an aspect of the invention to provide a device that can house them in the Open IP Services Platform. Not only can these network components be disposed within the Open IP Services Platform, but more than one type of network component can be housed together. Essentially, all of the network components listed previously, as well as others, can be housed within a single network switching node device of the Open IP Services Platform.

[0047] In order to dispose these network components together so that they function, several novel elements of